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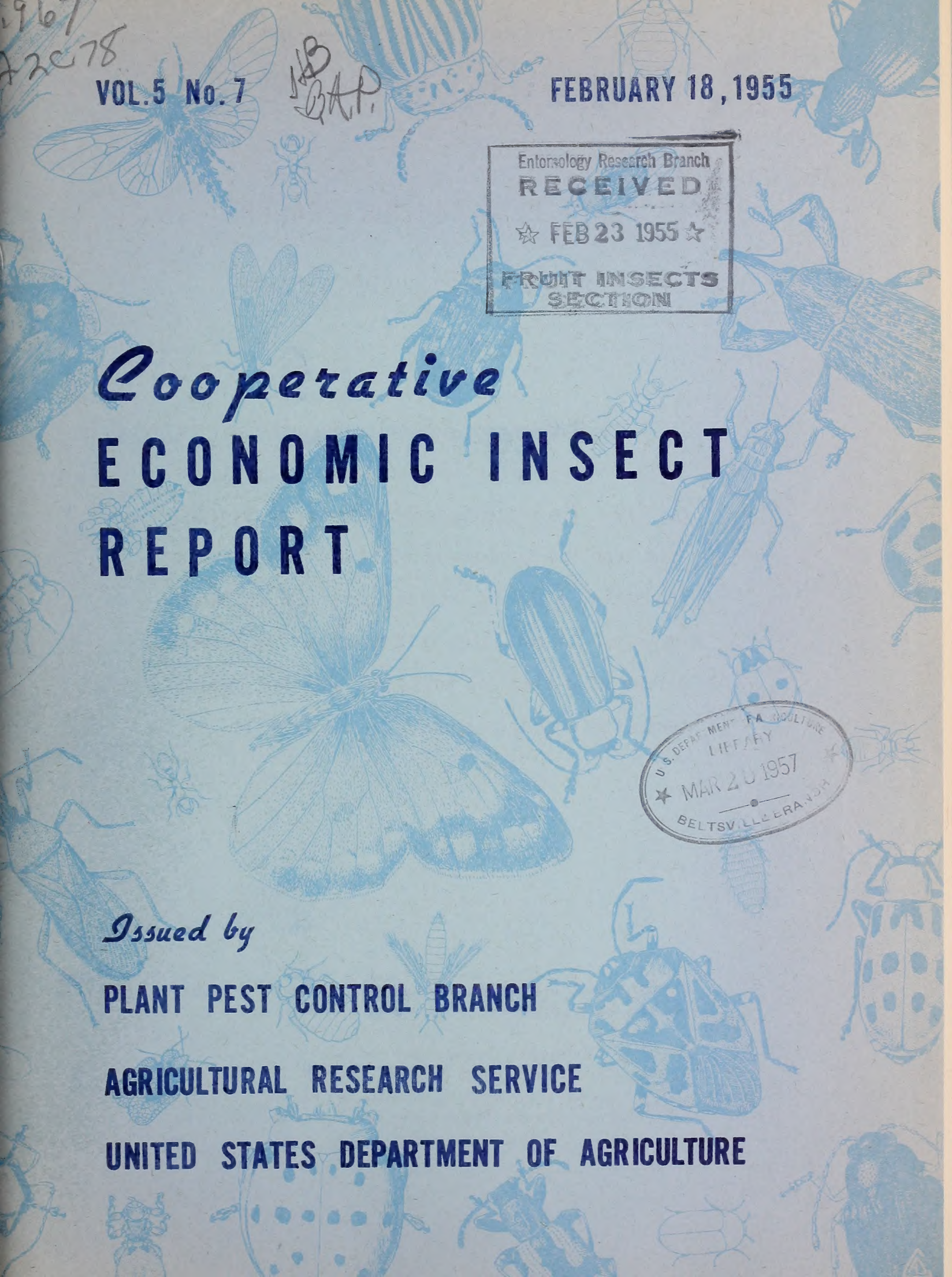

# *Cooperative*
# ECONOMIC INSECT REPORT

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PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

# AGRICULTURAL RESEARCH SERVICE

# PLANT PEST CONTROL BRANCH

## ECONOMIC INSECT SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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Economic Insect Survey Section
Plant Pest Control Branch
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Volume 5 February 18, 1955 No. 7

# COOPERATIVE ECONOMIC INSECT REPORT

## Highlights of Insect Conditions

YELLOW CLOVER APHID reported from Oklahoma. General infestation in some areas of Arizona. (page 131).

TOMATO RUSSET MITE collected in South Carolina in late 1954 for the first time. (page 133).

Map of PINK BOLLWORM regulated areas. (after page 134).

Heavy local infestations of IPS BEETLES in Georgia and Arkansas. (page 133).

LIGHT TRAP collections in southern areas of Florida and Texas. (page 134).

Summary of INSECT CONDITIONS - 1954 - in Virginia (page 136) and Arizona (page 145)

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Reports in this issue are for the week ending February 11, 1955, unless otherwise designated.

## WEATHER BUREAU'S 30-DAY OUTLOOK
### *Mid-February to Mid-March 1955

The Weather Bureau's 30-day outlook for the period mid-February to mid-March calls for temperatures to average below seasonal normals over the eastern third of the nation and also over the southern Plateau States. Above normal temperatures are predicted in the Pacific Northwest and in the Southern Plains. Otherwise near normal temperatures are indicated. Precipitation is expected to be greater than normal over the Southwest and in the Plains States, but subnormal over the Northeast and Pacific Northwest. In other areas about normal amounts are predicted.

*This report released by the Weather Bureau on February 15, 1955

Weather forecast given here is based on the official 30-day "Resume and outlook," published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington, D. C. Price: $4.80 a year, $2.40 for six months.

## WEATHER FOR THE WEEK ENDING FEBRUARY 14, 1955

A severe cold wave over the eastern half of the Country was the main weather feature of week. Cold Arctic air preceded by light to moderate precipitation which began pushing into north-central areas on the 9th and 10th reached the Atlantic Coast on the afternoon of the 12th. As the cold air moved across the Eastern States temperatures dropped 50° or more; on the morning of the 12th the fall in temperature for the preceding 18 hours was 54° at Pittsburgh, Pa., 57° at Charleston, W. Va., and 50° at Richmond, Va. Minima fell to subzero levels over eastern Kansas, southern Missouri, Kentucky, the central Appalachians and Northeast, and to subfreezing levels over all the South except extreme southern portions of Florida and Texas. In the latter State the freeze and general frost caused considerable damage to tender vegetation including early cotton, much of which will have to be replanted. Over most of the Nation the week was cold and dry. Temperatures for the week averaged 12° or more below normal in most of Iowa and adjacent areas of Missouri, Kansas, Nebraska, South Dakota, and Minnesota, and 9° or more from western Kentucky to the Gulf, and in northern Utah.

The Week's precipitation totaled one-half inch or more only along the Atlantic Coast and in western Washington and Oregon. Totals were very light elsewhere, the lower Great Plains and Southwest (Weather Continued on page 135 ).

## CEREAL AND FORAGE INSECTS

YELLOW CLOVER APHID (*Myzocallis trifolii*) - ARIZONA - Continues active on alfalfa. Several threatening populations in Yuma County during January. In Maricopa County one 20-acre field averaged 3 to 5 aphids per leaf on 1 to 3-inch plants. Four other fields (200 acres) had less than 1 per leaf. Building up in Pinal County, some fields being treated. In Graham and Greenlee Counties infestation general, very heavy in some fields. Aphids in all stages, including winged forms. Temperatures in Greenlee County have been as low as 5°F. Some untreated young fields have been killed out. Lady beetles seem to be building up in this area. (Ariz. Coop. Rept.). OKLAHOMA - Very abundant on alfalfa last fall and has survived the winter thus far in fairly large numbers. Far more abundant than pea aphid which was exceedingly rare last fall in fields examined. (Fenton).

CORRECTION: In the summary of the Yellow Clover Aphid on Alfalfa in 1954 (CEIR 5 (2): 39), the following sentence under control, "In New Mexico the following insecticides, etc." should read, "In New Mexico the following insecticides were tried for the control of this pest: DDT, malathion, parathion, BHC, Systox, nicotine, TEPP and sulfur alone or in combination with other insecticides."

APHIDS - ARKANSAS - Small grain fields in Chicot, Desha, Lincoln and Jefferson Counties carrying very low numbers. Greenbug noted in one field and corn leaf aphid in two. (Warren). - TEXAS - A yellow clover aphid (*Myzocallis* sp.) causing medium to heavy widespread infestation on alfalfa in Maverick County. Heavy damage to young alfalfa. (Davis). ARIZONA - Pea aphid and green peach aphid observed in Graham and Greenlee Counties. (Ariz. Coop. Rept.).

GREEN CLOVERWORM (*Plathypena scabra*) - TEXAS - Light to medium widespread infestation on alfalfa and clovers in Wharton, Fort Bend and Matagorda Counties. Most larvae still small and most crops ready to be cut for hay. (Davis).

ARMYWORM (*Pseudaletia unipuncta*) - ARKANSAS - One second-instar larva taken in roadside vegetation. Adults observed as far north as Johnson County night of February 9 preceding coldest season of the winter. (Warren).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - CALIFORNIA - Found at Los Angeles infesting a shipment of green corn from an infested state. The shipment was diverted out of California. (Myers). This insect is not known to occur in California.

A THRIPS (Frankliniella occidentalis) - ARIZONA - Medium infestation on 80 acres of seedling alfalfa at Perryville, Maricopa County, treated with good results February 1. (Ariz. Coop. Rept.).

CUTWORM - ARIZONA - About 3 per square foot(mostly Agrotis ypsilon) in one alfalfa field near Laveen, Maricopa County. Mostly full-grown larvae and a few pupae. Damage slight. (Ariz. Coop. Rept.).

COLLEMBOLA - TEXAS - Heavy local infestation in a vetch field in Red River County. Depressions in field completely full of Collembola. (Lynch). ARIZONA - Numerous on 40 acres of alfalfa in Maricopa County. Damage doubtful. (Ariz. Coop. Rept.).

RHODES-GRASS SCALE (Antonina graminis) - FLORIDA - Adults collected from St. Augustine grass at Crystal River, Citrus County and Port Richey, Pasco County. As far as known this is a new record for both counties. (Dekle).

A ROOT MAGGOT (Prob. Hylemya cilicrura) - GEORGIA - Tunnelling in underground stem of blue lupine near Americus, January 14 and near Ocilla, January 17. Seven percent of the stems attacked. (Benton, Manglitz).

TRUCK CROP INSECTS

ASPARAGUS MINER (Melanagromyza simplex) - NEW JERSEY - A cooperative survey of 40 asparagus fields in Burlington, Cumberland, Gloucester and Salem Counties revealed that this species was found in every field inspected. Stalk infestation ranged from 3 to 82 percent. This indicates that the pest may possibly influence the asparagus production. (Merrill).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - SOUTH CAROLINA - Larvae and adults causing considerable injury to turnips and spinach in the Charleston area. (Cuthbert, Deen, Feb. 1). FLORIDA - Averaging 3 to 5 larvae per plant and heavily infesting turnips in a few small areas at Gainesville. (Kuitert).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - FLORIDA - Minor infestations of larvae on early potatoes at Homestead. More found on field margins than near middle of 80-acre fields. (Wolfenbarger).

CABBAGE APHID (Brevicoryne brassicae) - SOUTH CAROLINA - General but light infestations on most plantings of young spring crop cabbage and on kale in one field in the Charleston area. (Cuthbert, Deen, Feb. 1.). FLORIDA - Scattered infestations on cabbage. (Dobrovsky).

GREEN PEACH APHID (Myzus persicae) - SOUTH CAROLINA - Abundant on spinach and smaller numbers on cabbage in Charleston area. (Cuthbert, Deen, Feb. 1).

TURNIP APHID (Rhopalosiphum pseudobrassicae) - SOUTH CAROLINA - Moderate to heavy infestations on turnips, kale and in some plantings of young cabbage in the Charleston area. (Cuthbert, Deen, Feb. 1).

TOMATO RUSSET MITE (Vasates lycopersici) - SOUTH CAROLINA - Mites collected November 1954 in the Charleston area on breeding tomatoes brought from the field to the greenhouse. The infestation was checked last fall but mites are still present in the greenhouse. Det. E. W. Baker. This is the first record of the species for the State. (Cuthbert, Reid, Feb. 7).

## COTTON INSECTS

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Few adults seen at Eloy, apparently coming out of hibernation. (Ariz. Coop. Rept.).

## FOREST, ORNAMENTAL AND SHADE TREE INSECTS

IPS BEETLE - GEORGIA - Heavy infestation in 70-acre, 25-year old loblolly pine planting in Jasper County. One and one-half to 2 acres already dead, January 31. (Milner).

ARKANSAS - Heavy concentration in dying pines in Pulaski County. About 2 to 3 acres affected. (Warren).

COLUMBIAN TIMBER BEETLE (Corthylus columbianus) - VIRGINIA - Light to medium local infestation of tulip trees in Bedford County. One to 5 holes per tree and severe blue stain found in the butt logs. (Plumb).

A PINE TIP MOTH - GEORGIA - Light to moderate infestation in young pines in Jones County, January 31. (Milner).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Eggs hatched February 6 in Gainesville area. (Hetrick).

## INSECTS AFFECTING MAN AND ANIMALS

SCREW-WORM (Callitroga hominivorax) - GEORGIA - Infestation in hog in Wilcox County, February 4. (Geiger).

## MISCELLANEOUS INSECTS

### Light Trap Collections:

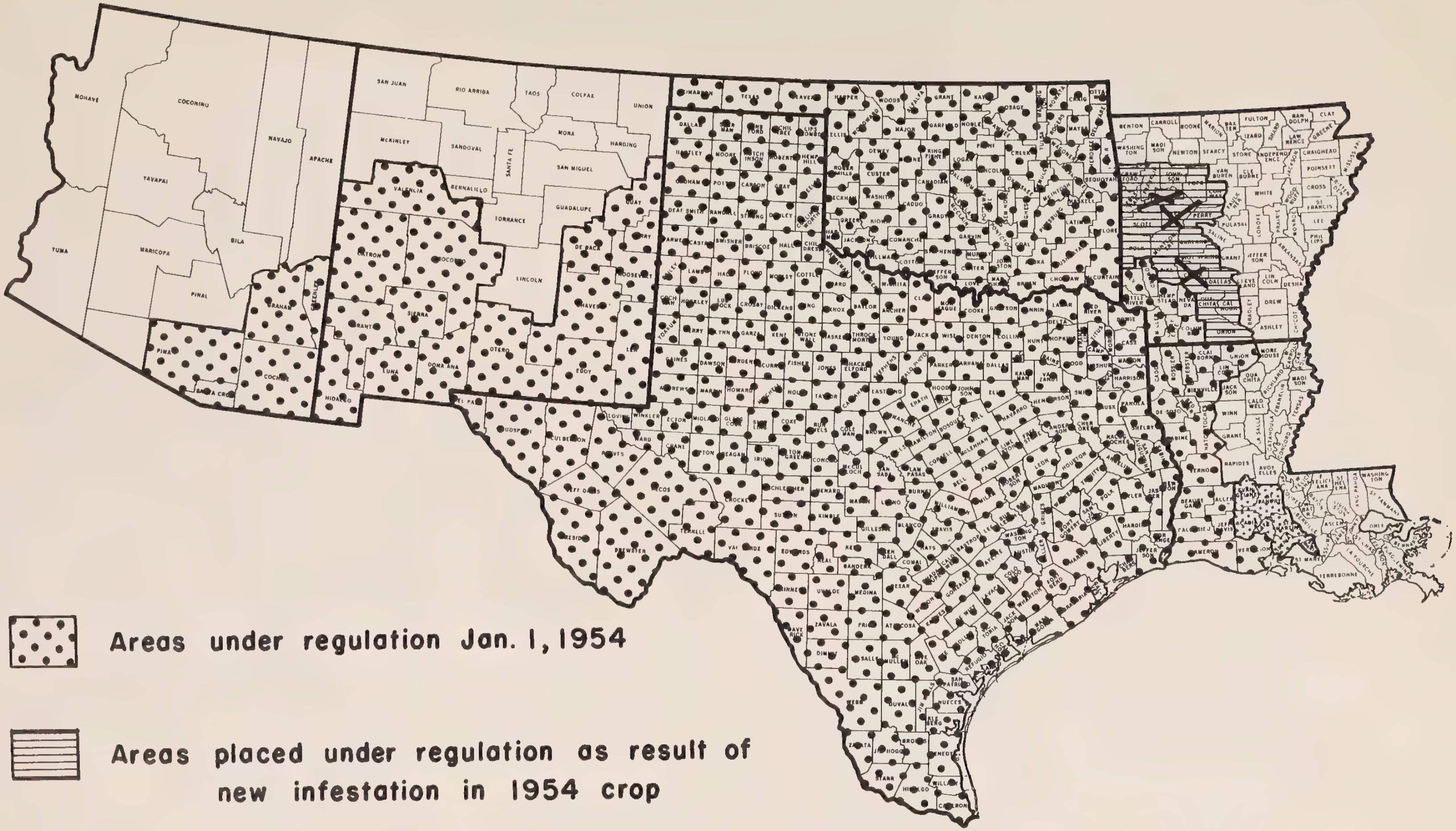
FLORIDA - Some of the more important insects taken at Homestead, between January 2 and 24 are as follows: Nezara viridula 19, Argyrogramma verruca 2, Diacrisia virginica 4, Diaphania nitidalis 1, Estigmene acraea 1, Feltia annexa 6, Herse cingulata 1, Isia isabella 1, Mocis repanda 18, Prodenia dolichos 17, P. ornigthogalli 3, Protoparce sexta 1, Pseudaletia unipuncta 7, Utetheisa bella 7. (Wolfenbarger).
TEXAS - The following moths were taken in a light trap at Weslaco during January: yellow-striped armyworm (Prodenia ornithogalli 182, armyworm (Pseudaletia unipuncta) 130, bollworm (Heliothis armigera) 61. (Marsh).

## STORED PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - UTAH - Damaging stored grain at Logan. (Knowlton).

# PINK BOLLWORM REGULATED AREAS

# JANUARY 1, 1955



- ⁘ Areas under regulation Jan. 1, 1954
- ▤ Areas placed under regulation as result of new infestation in 1954 crop
- ░ Released from quarantine June 22, 1954
- ☒ Pink bollworm found for first time during 1954 crop season in new regulated area

## RECENT IMPORTANT INTERCEPTIONS AT PORTS OF ENTRY

Thirty living larvae of the spruce cone moth, *Laspeyresia strobilella* (L.), were intercepted recently in spruce cones in baggage from Germany at Hoboken, N. J. (Amyx, Roth, Stegmeier). All the cones in a shipment of 30 were found infested. This insect has been reported injurious to the cones and seeds of spruce in parts of northern Europe and Great Britain. Observations on the biology of the insect in Scotland indicate the adult moth deposits its eggs on the cone scales in early spring. The larvae on hatching bore into the cones, feed there during the summer and autumn, then hibernate in the cones, and pupate the following spring between the scales. Infested cones often become gummy, misshapen and unsightly. *L. strobilella* has been intercepted in recent years in spruce cones from Czechoslovakia, Germany, Norway and Sweden and in fir cones from Germany. It is not known to occur in the United States. (Compiled - Plant Quarantine Branch).

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### Weather Continued

receiving no precipitation at all. In the western portions of the Great Plains the soil is extremely dry in eastern portions of Wyoming, Colorado, and New Mexico, western Texas, and the Oklahoma Panhandle, and rain is now needed over the remainder of the Southwest. In Nebraska, Kansas, and central and eastern portions of Oklahoma, and Texas recent rains and snows have improved topsoil moisture which is now generally adequate. Soil moisture is ample to excessive in the Southeast.

Snowfall in the far West was generally very light, except for rather heavy falls in the Cascades where depth increases of more than a foot occurred on some of the higher peaks. East of the Rockies falls generally ranged from 1 to 4 inches in north-central areas and the central Appalachian region, and from a few inches up to a foot in northern New York and New England. There was little change in the extent of the snow cover during the week. (Summary Supplied by U.S. Weather Bureau).

# SUMMARY OF INSECT CONDITIONS - 1954

## VIRGINIA

Reported by A. P. Morris

*Cereal and Forage Insects* (Morris, Davich, Turner, and Muka) CORN EARWORM (*Heliothis* spp.) damage varied from light to extremely heavy in all parts of the State. The principal crops damaged were corn, soybeans, peanuts, and grain sorghum. Outbreaks during June caused heavy damage to the whorl and buds of corn in many localized areas. Soybeans, grain sorghum, and peanuts in eastern and southeastern areas were heavily damaged by outbreaks during the early part of September. These infestations were more severe than during the preceding year. The soybean yield was estimated to have been reduced approximately 4 percent in the southeastern counties. In eastern counties, damage to late-maturing soybeans was general and ranged from 10 to 50 percent. ARMYWORM (*Pseudaletia unipuncta*) outbreaks occurred in small grain and forage crops in widely separated areas during May and damage continued about a month. Late-spring outbreaks began in corn near middle of June. The initial outbreaks were reported in Washington, Pulaski, Norfolk, and Montgomery Counties. EUROPEAN CORN BORER (*Pyrausta nubilalis*) is primarily of importance in southwestern and northern Virginia. Fall abundance survey in four northern and three southwestern counties revealed that infestations were 28 percent less than preceding year. FALL ARMYWORM (*Laphygma frugiperda*) outbreaks were delayed until latter half of August. Heavy damage to late corn in scattered counties.

MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) adult infestations ranged from light to heavy in all areas. Heaviest infestations were in southwestern, west-central, and northern counties. POTATO LEAFHOPPER (*Empoasca fabae*) populations were still light in most alfalfa-growing regions at end of June; but continued to increase until large numbers and heavy damage became obvious in some fields of southwestern, west-central, east-central, and northern counties. Infestations continued high through August. Damage was not as severe as the preceding year. The CLOVER ROOT CURCULIO (*Sitona hispidula*) was heaviest in southwestern counties. Heavy outbreak also found in Page County. Stands of clover in Richmond and Bedford Counties were also damaged. CLOVER ROOT BORER (*Hylastinus obscurus*) infestations appear more prevalent in the higher and cooler regions. Heaviest infestations in 1954 were in Montgomery, Augusta, and Rockingham Counties.

ALFALFA WEEVILS (Hypera postica ) were first found in the State in Loudoun County during early June 1952, and the known distribution of the species is still limited to a small area; however the insect is extending its range. During the year counties reported infested were Loudoun, Fairfax, Prince William, Stafford, King George, Page, Rockingham, Albemarle, and Westmoreland. The heaviest population recorded in 1954 was 50 larvae per 200 sweeps in a Fairfax County alfalfa field. Damage by A BLUEGRASS BILLBUG (Calendra parvula) has caused some stands of orchard grass to die out. This is a new pest to permanent pastures containing orchard grass in Virginia. No effective control has been found. In 1954 damaging infestations were recorded in Page, Loudoun, Albemarle, and Richmond Counties. APHIDS appeared to have been unimportant during 1954 except PEA APHID (Macrosiphum pisi) on alfalfa. This species caused heavy damage in some fields. High populations in some counties in May and again in fall. RAPID PLANT BUG (Adelphocoris rapidus) and TARNISHED PLANT BUG (Lygus lineolaris) were most prevalent plant bugs in alfalfa and clover. WHITE GRUB infestations were more severe in some southern and southeastern counties and other areas than in 1953. Approximately 20 percent of the Tidewater area pastures had moderate infestations and 2 percent severe infestations. SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) damage to peanuts was greater in Tidewater area than in 1953. JAPANESE BEETLE (Popillia japonica) damage was lighter to cereal and forage crops than in 1953. All but 27 counties in the State are known to be infested. Heavy outbreaks were recorded in parts of Smyth, Washington, Rockingham, and Botetourt Counties. Outbreaks in parts of the southeastern counties were lightest in several years.

LESSER CORNSTALK BORERS (Elasmopalpus lignosellus) damaged peanuts in southeastern and eastern counties for the second consecutive year, doing more damage than during 1953. This insect depressed peanut yields by an estimated 5 percent in light soil types, or approximately 2. 5 percent for State as a whole. SOUTHERN CORNSTALK BORER (Diatraea crambidoides) damage was largely confined to some southern counties. GRASSHOPPER populations were general during 1954, but damage was light; however, heavy infestations were recorded in some alfalfa and clover fields in several counties. SPIDER MITE populations of varying intensities occurred in soybeans, peanuts, and corn in some areas. FLEA BEETLE infestations were generally light on cereal and forage crops. SAP BEETLES injury has been very severe to sweet corn in eastern areas even when damage to the shuck by other pests could not be found. Losses were high in Accomac and Northampton Counties. Heavy damage also in widely scattered fields over State by the insects as secondary invaders.

GREEN CLOVERWORM (*Plathypena scabra* ) was of little importance during 1954.

Fruit Insects

APPLES (Hough, Hill, Woodside) - CODLING MOTH (*Carpocapsa pomonella*) did not cause much damage until late August and in September after most growers had stopped spraying. Late injury ranged from light to severe. (Estimated loss 5 percent). ROSY APPLE APHID (*Anuraphis roseus*) threatened to cause severe damage until the second generation was largely destroyed by insecticides. (Estimated loss 4 percent). RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana* ) caused considerable damage late in the season in the central fruit growing area. (Estimated loss 3 percent). PLUM CURCULIO (*Conotrachelus nenuphar*) damage was largely by second brood or late first brood in central and southern fruit growing areas. (Estimated loss 2 1/2 percent). MITES (mostly *Metatetranychus ulmi*, *Tetranychus schoenei*) were less abundant than usual, but some bronzing in dry areas of central and southern fruit growing regions. (Estimated loss 2 percent). SCALE INSECTS (mostly *Aspidiotus forbesi*) were less numerous than in previous years. (Estimated loss 1/2 percent). AN UNSPOTTED TENTIFORM LEAF MINER (*Callisto geminatella*) caused severe defoliation in some apple orchards of northern Virginia. (Estimated loss 1 percent).

STONE FRUITS (Bobb and Woodside) - PLUM CURCULIO (*Conotrachelus nenuphar*) overwintering population was not especially heavy but hot dry weather throughout the year was favorable to development. Second-brood infestation was largest in more than 20 years, and considerable injury was caused to peach fruits in July. If efficient insecticides had not been available the peach crop could have been a complete loss in Piedmont and Tidewater sections where the second brood developed. From 5 percent to 70 percent of the peach fruits were injured, with an average of approximately 17 percent. ORIENTAL FRUIT MOTH (*Grapholitha molesta*) was not a serious pest in sprayed orchards during 1954. Injury to peach fruits averaged less than 1 percent with a maximum of 6 percent. PEACH TREE BORER (*Sanninoidea exitiosa*) caused only minor damage to sprayed trees. Approximately 1 percent of the trees were killed by this insect. Large numbers of LESSER PEACH TREE BORER (*Synanthedon pictipes*) caused considerable injury to limbs and branches of the trees in Tidewater area. Approximately 5 percent of the trees were injured severely. EUROPEAN FRUIT LECANIUM (*Lecanium corni*) - Approximately 2000 bushels of peaches were lost from a fungus growing on secretion of these insects in central area.

Peach trees in the eastern sections were severely injured by MITES. About 10 percent injury in eastern orchards but none in orchards of remainder of State.

Truck Crop and Garden Insects (Greenwood, Hofmaster, and Brubaker) - SPIDER MITES on strawberries generally light until halfway through harvest in eastern area. Hot, dry weather thereafter caused considerable increase in injury. TOMATO RUSSET MITE (Vasates lycopersici) was first found in Virginia in 1954 in Arlington. CORN EARWORM (Heliothis spp.) was very severe on snaps and lima beans, black-eye peas, and spotty on soybeans. Rather heavy on leaf crops such as kale and collards and severe on peppers on parts of the Eastern Shore. Injury to beans was unusually severe over wide area. FALL ARMYWORM (Laphygma frugiperda) extremely heavy, severe unusually heavy damage to sweet corn. Damage only slightly less on kale and collards in localized areas. Also some injury to peppers on the Eastern Shore. FLEA BEETLES, overwintering brood heavy on potatoes and tomatoes on Eastern Shore. Otherwise, less serious than in 1953. BEAN LEAF BEETLE (Cerotoma trifurcata) was not particularly serious on snap beans but caused heavy damage to late soybeans. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) almost absent on late snap beans; lightest in years.

Tobacco Insects (C.B. Dominick)
TOBACCO FLEA BEETLE (Epitrix hirtipennis) was light in plantbeds and on newly-set plants, but built-up to heavy populations in many tobacco fields during July and August. HORNWORMS (Protoparce spp.) populations were generally far below normal. BUDWORMS (Heliothis virescens and H. armigera) were generally light during the season. GREEN PEACH APHID (Myzus persicae) built-up on field tobacco during June. Hot dry weather with natural enemies kept the insect under control in most fields. GRASSHOPPERS were heavier than usual to burley type tobaccoes in southwestern counties.

Cotton Insects (Morris)
BOLL WEEVILS (Anthonomus grandis) caused light to heavy damage to cotton in southeastern Virginia. Emergence of overwintered adults was occurring near the end of June and population counts averaged 467 per acre for Lunenburg, Greensville, Mecklenburg, and Brunswick Counties. Square infestation rates were high in many cotton fields, average 40 percent, during the first half of July. Examinations near the middle of September showed heavy damage to top crops, and medium damage to many middle crops. A survey of hibernated boll weevils in three counties during November revealed an average of 2,033 per acre.

COTTON BOLLWORM (Heliothis spp.) damage was light during 1954. A general outbreak was recorded in Greensville County during late August. The damage to Mecklenburg County fields during early September averaged 2.3 percent. SPIDER MITE infestations ranged from light to heavy in cotton fields of southeastern Virginia. Medium to heavy populations were general in the cotton growing area by the middle of September and defoliation had begun in some fields.

Forest and Shade Tree Insects (Morris, Plumb, Patton, Lyon, Gill) NANTUCKET PINE MOTH (Rhyacionia frustrana) infestations were erratic in severity over State during 1954 and spot plantings of young pine 3 to 6 feet in height were heavily damaged. TWO-LINED CHESTNUT BORER (Agrilus bilineatus) caused heavy damage to oaks everywhere that drought was serious. Damage is believed worse than in previous years and is expected to increase during the next year in drought damaged areas. SOUTHERN PINE BEETLE (Dendroctonus frontalis) infestations were present in southcentral and eastern areas. Infestations and damage were heavy in stands of pine where the drought has been severe for the past three years. AMBROSIA BEETLES, various species, damaged both pines and hardwoods. Infestations were worse in 1954 than during previous year and are expected to continue increasing in areas where drought damage to trees was heavy. TURPENTINE BEETLES were general over State. Some heavy infestations. IPS BARK BEETLES were heavy in many areas East of the Piedmont mountains. Infestations and damage are expected to increase in pine plantations in drought stricken areas and in recently cut-over areas. A large area where damage was particularly heavy during 1954 was in south-central counties. Heavy damage also in Henrico, Westmoreland, Richmond, and Gloucester Counties. PALES WEEVIL (Hylobius pales) was heavy this year in the south-central and southeastern counties where it damaged natural and planted seedlings in recently cut-over and thinned areas. Infestations were heavier than in 1953 and expected to increase. SAWFLIES (primarily Neodiprion americanus) reached outbreak proportions in parts of eastern Virginia and on Eastern Shore during 1954. FALL CANKERWORM (Alsophila pometaria) outbreaks partially or completely defoliated large acreages of mixed stands of hardwoods in Grayson County and in areas of Augusta and Nelson Counties. A large number of dead or dying trees were reported in parts of Grayson and Smyth Counties where outbreaks occurred in 1953. PINE WEBWORM (Tetralopha robustella) infestations were medium to heavy in localized areas of Accomac, Henrico, and Goochland Counties.

ELM LEAF BEETLE (*Galerucella xanthomelaena*) infestations were heavy. SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) infestations were reported from areas in Fairfax and Loudoun Counties. VECTORS OF OAK WILT that have attracted the attention of state forestry personnel because of their potential damage are NITIDULID BEETLES, POMACE FLIES, and particularly one of the OAK-BARK BEETLES (*Pseudopityophthorus pruninosus*), as it appears to be increasing on oaks affected by the drought.

**Nursery and Ornamental Plant Insects** (Morris, Willey, Freund, Matheny, Miller, and Harrell)
Forty species of SCALE INSECTS were found in varying degrees of infestation in Virginia nurseries during 1954. Most prevalent were *Aspidiotus* spp. which caused more loss. Of these, SAN JOSE SCALE was the most common and seems to be increasing in nurseries over the State. A WAX SCALE (*Ceroplastes ceriferus*), CAMELLIA SCALE (*Lepidosaphes camelliae*), A TEA SCALE (*Fiorinia theae*), and FLORIDA RED SCALE (*Chrysomphalus aonidum*) were the most important species in southeastern area, due primarily to the large numbers of the principal host plants, camellias and ornamental hollies, grown in the area. JUNIPER SCALE (*Diaspis carueli*) was found more frequently in southwestern area and MAGNOLIA SCALE (*Neolecanium cornuparvum*) might develop into a major pest in this area. One extremely heavy infestation of the magnolia scale was found during the 1954 nursery inspection. WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) was the most common species found throughout southern counties. EUROPEAN ELM SCALE (*Gossyparia spuria*), EUONYMOUS SCALE (*Unaspis euonymi*), JUNIPER SCALE (*Diaspis carueli*), and OYSTERSHELL SCALE (*Lepidosaphes ulmi*) were the most important species in northern Virginia. In the eastern section, SAN JOSE SCALE, EUONYMOUS SCALE, and TULIP TREE SCALE (*Toumeyella liriodendri*) were the dominant species. Taking the State as a whole, SAN JOSE, EUONYMOUS, JUNIPER and GLOOMY SCALES, and AN OAK PIT SCALE (*Asterolecanium quercicola*) appeared to be the principal species found, not only in nurseries, but in private and municipal plantings of ornamental plants. SPIDER MITES were general on nursery stock and ornamental plants over the entire State. BOXWOOD LEAF MINER (*Monarthropalpus buxi*) was a most important pest in the eastern and central areas with the exception of the coastal area. WOOLLY APPLE APHID (*Eriosoma lanigerum*) caused rejection and consequent destruction of considerable amounts of apple propagation stock in nurseries. LACE BUGS (mostly *Stephanitis* sp.) were

relatively heavy on azalea, pyracantha, cotoneaster, linden, hawthorn, and rhododendron over the State. JAPANESE BEETLE (Popillia japonica) damage was light on nursery stock. BAGWORM (Thyridopteryx ephemeraeformis) infestations were heavy in most nurseries on Eastern Shore but noticably less than during 1953 in other areas. BORERS (Sanninoidea exitiosa, Podosesia syringae, Thamnosphecia scitula) continue to cause considerable damage to susceptible plants in nurseries.

Household Insects (Morris and Rowell)
HOUSE FLY (Musca domestica) populations built up to heavy around homes and dairy barns in early June in several counties. TERMITE infestations and damage in the State is increasing at a noticable rate. CLOVER MITES (Bryobia praetiosa), large populations, invaded homes in northern counties. CIGARETTE BEETLES (Lasioderma serricorne) - Large populations emerged from warehouses of stored tobacco at Warwick City, Newport News, and Danville, during September and October and dispersed into homes in the immediate vicinity.

Insects Affecting Man and Animals (Rowell and Morris)
MOSQUITOES annoyed man and animals in many areas. CHIRONOMIDS, annoyed man and animals to varying degrees. One population increased in the Blacksburg area until control measures were applied. CATTLE LICE were observed on cattle thr ughout the year and were especially noticeable during late summer and early fall. The largest and most general infestations occurred in the southwestern, Shenandoah Valley, and eastern areas. COMMON CATTLE GRUBS (Hypoderma lineatum) were found in cattle over the State but heaviest infestations occur in the Southwestern, Shenandoah Valley, and Eastern areas. SHEEP BOT FLY (Oestrus ovis) - The only infestation reported during the latter part of 1954 was in Montgomery County and in this instance larvae were found in the eye of a six-year old boy by a medical doctor. LONE STAR TICK (Amblyomma americanum) - A single specimen was found on a man's leg at Yorktown. It was not determined whether the tick was picked up in some other area or locally. CHICKEN MITE (Dermanyssus gallinae) infestations occurred in all areas, most prevalent in areas where poultry and turkeys are raised on a large scale.

Stored Product Insects (Morris and Rowell)
ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) larvae occurred in stored grain in all parts of the State, particularly in grains on the farm. DERMESTIDS were found damaging stored hams in scattered locations. CIGARETTE BEETLES (Lasioderma serricorne)

infested stored tobacco in various warehouses in the State but damage was probably slightly less than in 1953. Heavy broods emerged during September and October at Warwick City, Newport News, and Danville. Light to moderate damage was expected at Richmond and Portsmouth and moderate to heavy damage at Kenbridge. TOBACCO MOTH (*Ephestia elutella*) caused only light to moderate damage at storage points during 1954. Injury was lighter than during 1953. Infestation of WEEVILS (*Sitophilus granarius*, *Sitophilus oryza*) heavily injured old wheat in Smyth County.

## Monetary Estimate of Losses Attributable to Insects - 1954

| | |
|---|---|
| Cereal and Forage Crop Insects: | |
| Armyworm | $ 2,125,892.19 |
| Fall Armyworm to corn | 669,757.97 |
| Corn Earworm to corn | 1,339,515.94 |
| Corn Earworm to soybeans | 693,000.00 |
| Southern Corn Rootworm to peanuts | 1,000,000.00 |
| Lesser Cornstalk Borer to peanuts | 580,000.00 |
| Fruit Insects | |
| *Codling Moth | 1,391,354.11 |
| *Rosy Apple Aphid | 1,113,083.33 |
| *Red-Banded Leaf Roller | 834,812.50 |
| *Plum Curculio to apples | 695,677.70 |
| Plum Curculio to stone fruits | 508,750.00 |
| *Mites to apples | 556,541.05 |
| Mites to stone fruits | 92,500.00 |
| *Unspotted Tentiform Leaf Miner | 278,271.45 |
| *Forbes Scale and Other Scale Insects to apples | 139,134.80 |
| European Fruit Lecanium to stone fruits | 3,700.00 |
| Lesser Peach Tree Borer | 138,750.00 |
| Peach Tree Borer | 46,250.00 |
| Oriental Fruit Moth | 23,125.00 |
| Truck Crop and Garden Insects: | |
| Tobacco Insects (All): | 1,650,000.00 |
| Cotton Insects (All): | 583,845.90 |
| Forest and Shade Tree Insects: | |
| *Nursery and Ornamental Plant Insects (all): | 567,708.00 |
| Household Insects: | |
| Insects Affecting Man and Animals: | |
| Stored Products Insects: | |
| | $15,031,669.97 |

## Monetary Estimate of Savings by Using Insect Control Methods

| | |
|---|---|
| Cereal and Forage Crop Insects: | |
| Southern Corn Rootworm to peanuts | 750,000.00 |
| Fruit Insects (Entire Crop): | 2,220,000.00 |
| Nursery and Ornamental Plant Insects | 1,552,800.00 |
| | $4,522,800.00 |

*Cost of insect control included in the values given

# SUMMARY OF INSECT CONDITIONS - 1954

## ARIZONA

Reported by F. G. Werner

### Cereal and Forage Insects

**Alfalfa:** YELLOW CLOVER APHID (Myzocallis trifolii) was the most serious pest in 1954 in all southern counties except Cochise. In Yuma County infestations persisted from May 15 to July 20 and again from October 16 to the end of the year. In Maricopa and Pinal Counties, populations noted from June 18 to July 17 (very heavy), again October 16 to end of year. In Pima and Santa Cruz Counties light infestations were recorded June 25, outbreak numbers Avra Valley and other locations September 10 which continued to end of year. Cochise and Graham Counties had small numbers June 25 to July 30. Outbreak numbers were present in Graham County from about October 15 on. EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) was abundant in Yuma and Maricopa Counties; first eggs and larvae February 6-13, peak April 2-9 and decreasing April 30; more severe and widespread in Maricopa County than in previous years. ALFALFA CATERPILLAR (Colias philodice eurytheme) was heavy at times in Yuma County; peaks May 21, July 24 to August 13, September 10-18, and October 1. In Maricopa and Pinal Counties the peak came July 20 to August 13. At Yuma the September 10-18 peak became serious because of the high populations of BEET ARMYWORM (Laphygma exigua) and GARDEN WEBWORM (Loxostege similalis). The heavy population of the webworm lasted until after October 9. A LEAF ROLLER (Platynota stultana) was abundant at Buckeye August 13 and from September 10-25 at Yuma, particularly on plants under water stress. A PLANT BUG (Lygus hesperus) was in high population at Yuma May 21 to June 15, heavier than in 1953 and more treatment needed, again July 24 to August 13. High populations were general in the southern counties the same dates. STINKBUGS (mainly Chlorochroa sayi) became very numerous on seed alfalfa in Yuma County and Safford July 24 to August 7.

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) had peak populations at Yuma March 1 to May 20 and throughout the southern counties June 25 to August 7 and after August 28. CLOVER SEED CHALCID (Bruchophagus gibbus) adults were numerous at Yuma June 12 and July 30, with high parasite counts July 30. Damage to the seed crop was less than in 1953

Other Legumes: - MEXICAN BEAN BEETLE (*Epilachna varivestris*) heavy in most fields of beans at higher altitudes June and July. A LEAFHOPPER was the main cause of a 40-acre loss of soybeans at Elfrida October 23. LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) damaged soybeans at Yuma June 25 to July 24. Some damage was reported also in Maricopa County and at Marana. Damaged black-eyed peas in Maricopa and Pinal Counties end of June,reduced one stand at Yuma by 80 percent July 24.

Barley: - CORN LEAF APHID (*Rhopalosiphum maidis*) in Maricopa and Yuma Counties and ENGLISH GRAIN APHID (*Macrosiphum granarium*) in Cochise and Graham Counties reached moderate to high populations in mid-May but parasites and predators built up and prevented extensive damage.

Sorghum: - Lepidopterous larvae caused damage to young plants, particularly FALL ARMYWORM in Maricopa County July 3 to July 30, LESSER CORNSTALK BORER in Maricopa County July 17 to August 7 and an armyworm at Yuma August 28. Damage to ripening grain was heavy at times, from SAY STINKBUG (*Chlorochroa sayi*) in Pima County July 13 to July 30, another STINKBUG (*Thyanta custator*) and a CORIZID (*Liorhyssus hyalinus*) in Maricopa County October 14, and a LEAFROLLER (*Platynota* sp.) at Phoenix September 18.

## Fruit Insects

CITRUS THRIPS (*Scirtothrips citri*) caused some damage to citrus at Yuma February 27, March 5 and September 25 to December 31; in Maricopa County March 19 to June 25. A THRIPS (*Frankliniella occidentalis?*) damaged ripening navel oranges Maricopa County November 27. A MITE (*Tetranychus yumensis*) was severe at Yuma March 13. DRIED FRUIT BEETLE (*Carpophilus hemipterus*) and PEACH TWIG BORER (*Anarsia lineatella*) did considerable damage to ripe peach fruit at Mesa June 18. A LEAFHOPPER (*Erythroneura variabilis*) was general on grape at Yuma September 25. WESTERN GRAPE LEAF SKELETONIZER (*Harrisina brillians*) was severe at Safford September 10. CLOVER MITE (*Bryobia praetiosa*) caused severe damage to apple in Oak Creek Canyon where trees not treated in winter - June 25. BLACK-MARGINED APHID (*Monellia costalis*) occurred in moderate to high populations on pecan at Safford, Phoenix, and Yuma.

## Truck Crop Insects

Lettuce: A SERPENTINE LEAF MINER (*Liriomyza* sp.) damaged seedlings in Maricopa County September 10 to October 2, aphids (*Macrosiphum barri* and *Myzus persicae*) reached damaging numbers in Maricopa County March 13 to March 19. CABBAGE LOOPER (*Trichoplusia ni*) caused some damage in Maricopa and

Yuma Counties generally. CORN EARWORM (*Heliothis armigera*) reached economic numbers in a few fields at Phoenix October 16. A THRIPS (*Frankliniella moultoni*) occurred in damaging numbers in Maricopa County March 13.

*Cantaloup and other curcurbits:* - BEET LEAFHOPPER (*Circulifer tenellus*) was very late in appearing in Maricopa County, first migration April 16. May surveys showed a low percent of viruliferous leafhoppers. CLOVER MITE damaged young cantaloup and squash under caps at Yuma February 19. SPIDER MITES severe on cantaloup plantings near alfalfa at Yuma April 9. ONION THRIPS (damaged some young plants at Mesa April 30. TWO-SPOTTED SPIDER MITE (*Tetranychus bimaculatus*) was severe on watermelon at Yuma March 13. A LEAFHOPPER (*Empoasca* sp.) caused serious damage to leaves of watermelon at Yuma June 10 to June 18. CUTWORMS were very abundant at Mesa on watermelon April 30. MELON APHID (*Aphis gossypii*) caused sticky watermelons at Yuma June 25 and reached economic numbers on cantaloup at Yuma April 25 and September 18. An EARWIG (*Euborellia cinticollis* ) and a DARKLING BEETLE (*Blapstinus* sp.) caused moderate to severe damage to the "net" of ripening cantaloup at Yuma June 4.

*Sweet corn:* - SEED-CORN MAGGOT (*Hylemya cilicrura*) caused considerable damage at Yuma September 18. LESSER CORNSTALK BORER caused damage to young plantings at Yuma July 30 and in Maricopa County June 12 and August 28. CORN EARWORM was heavy at Yuma May 28 and October 16; eggs on tassels in Maricopa County April 30, on silks May 21 and later; serious damage to leaves in Laveen area October 14. FALL ARMYWORM was the most serious pest of autumn plantings, destroying more than 300 acres in Maricopa County. SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) was severe in some fields in Maricopa County July 24 to October 23.

*Other Crops:* - CABBAGE APHID (*Brevicoryne brassicae*) was abundant on cole crops in Maricopa County January 15 to February 19. SOUTHERN CABBAGEWORM (*Pieris protodice*) and YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) became abundant on broccoli in September in Maricopa County. POTATO PSYLLID (*Paratrioza cockerelli*) was abundant in most potato fields in Maricopa and Pinal Counties April 24 to May 8, and had disappeared May 21. TOMATO RUSSET MITE (*Vasates lycopersici*) was serious on tomato at Yuma October 1, TOMATO FRUITWORM (*Heliothis armigera*) on ripening fruit at Yuma November 6. BEET LEAFHOPPER as vector of curlytop virus, is probably the most serious pest of tomatoes in most parts of the State.

THRIPS (*Thrips tabaci* and *Frankliniella moultoni*) were serious in onions in places in Maricopa County February 13 to March 19. A HORNWORM (*Protoparce* sp.) did damage to a chili pepper planting at Amado August 28. LEAFROLLER (*Platynota stultana*) very abundant on celery near Tolleson and Phoenix October 2 to October 16.

### Cotton Insects

MITES were very light in general throughout the season. DARKLING BEETLE damage scattered in Maricopa and Pinal Counties April 24 to May 8. THRIPS were deemed at an economic level in most areas from April 30 (Yuma), to June 15, with noticeable damage to seedlings reported in Pinal, Maricopa and Yuma Counties May 28. A WHITEFLY (*Trialeurodes abutilonea*?) developed heavier than normal populations in scattered fields throughout all areas except Cochise County from about April 24 to May 21, decreasing after that time. APHIDS (mostly *Aphis gossypii*) developed fairly heavy populations in parts of Maricopa, Yuma, Pinal and Greenlee Counties by April 30 but these infestations did not persist and other areas had very small numbers, probably due to a high parasite count. A PLANT BUG (*Lygus hesperus*) reached economic numbers about June 12 in Maricopa County and remained moderate to high to end of August, especially in the Buckeye area. Similar conditions prevailed in Pinal, Pima and Santa Cruz Counties but with lower average numbers. In Yuma County an economic level was reached July 10 and likewise remained moderate to high at the end of August. In Cochise and Graham Counties the general population remained low. FLEA-HOPPERS (*Psallus seriatus*, *Spanogonicus albofasciatus* and *Rhinacloa* sp.) were widespread but below economic levels in all areas, except in combination with *Lygus* sp. BOLLWORM (*Heliothis armigera*) infestations started about June 26 and became general in Yuma, Maricopa, Pinal, Pima and Santa Cruz Counties by early August. By mid-August predators were reducing populations in these areas. The population remained fairly low in most parts of Cochise and Graham Counties, Bowie and Safford having the highest general counts. Predators, particularly *Chrysopa* sp., seemed to hold the level down in this area also.

COTTON LEAF PERFORATOR (*Bucculatrix thurberiella*) first appeared at Yuma March 19 and reached large numbers in some fields at Parker and Yuma in mid-September. Elsewhere the populations were light. A LEAFROLLER (*Platynota stultana*) developed in Maricopa and Pinal Counties from low numbers August 14 to localized damage August 28 to October 2. Economic numbers developed at Yuma September 25 and became very high by October 9.

BEET ARMYWORM (reached economic numbers at Continental May 14 and June 26; in Yuma County May 21. Populations were generally light elsewhere. CABBAGE LOOPER (*Trichoplusia ni*) was reported light in Maricopa, Pinal, Cochise and Graham Counties from May to August, sub-economic except in combination with other larvae. LEAFHOPPERS (*Empoasca* spp.) were reported high at Yuma June 26 and August 7 and at Mesa July 30 and September 3 to September 25; the extent of leafhopper damage has not been evaluated. STINKBUGS reached economic level in Maricopa County July 24; fairly heavy at Continental June 26, San Simon and Franklin July 31. Mostly *Thyanta custator* and *Chlorochroa sayi* involved.

### Forest, Ornamental and Shade Tree Insects

ELM LEAF BEETLE (*Galerucella xanthomelaena*) was severe in Phoenix on elm May 21, June 4, August 13, Mesa and Safford June 25. A TENT CATERPILLAR (*Malacosoma fragilis*) abundant on cottonwood Phoenix to Tucson end of February into early March. A SCOLYTID (*Phloeosinus* sp.) caused widespread damage to Arizona cypress in Cochise County May 8. PINE BUTTERFLY (*Neophasia menapis*) migrated to Kaibab National Forest, September 10, a potential pest of pine in the area in 1955. A GROUND PEARL (*Margarodes* sp.) severe on Bermuda grass lawns in many parts of Phoenix May 26 and later; first report from Tucson October 9. A CUTWORM was abundant on lawns at Tucson August 28. TWO LEAFHOPPERS (*Carneocephala guttata* and *Aceratagallia curvata*) were severe on Bermuda grass seed fields at Roll June 10; a cicada (*Diceroprocta apache*) damaged by ovipositing in stems September 18. A FLEA BEETLE (*Oedionychis interjectionis*) damaged lippia lawns in Phoenix July 15. DIAMONDBACK MOTH (*Plutella maculipennis*) was severe on stocks at Scottsdale January 15. A NITIDULID (*Conotelus mexicanus*) was numerous on many flowers in the Phoenix area during the winter and spring seasons.

### Insect Pests of Man and Animals

HOUSE FLY(*Musca domestica*) was abundant at Yuma earlier than usual, April 30. BROWN DOG TICK (*Rhipicephalus sanguineus*) was reported several times at Phoenix, August 13 to October 9, in homes. NORTHERN FOWL MITE (*Bdellonyssus sylviarum*) was abundant on chickens at Tucson January 29 and in a hospital ward July 25. HORN FLY(*Siphona irritans*) unusually abundant in southern Arizona August 28. SCREW-WORM (*Callitroga hominivorax*) was high in southern Arizona following the rainy period in April and during the prolonged summer rains.

Insects of Stored Products

KHAPRA BEETLE (Trogoderma granarium) found in a number of localities, with heavy infestations in several establishments.

Beneficial Insects

In areas where barley was grown, BRACONID parasites built up on the barley aphids. Other aphids were also attacked. Chrysopa sp. larvae were largely responsible for reducing populations of bollworm on cotton in mid-season. These insects are believed to have developed resistance to chlorinated hydrocarbons.

Miscellaneous Insects

FIELD CRICKET (Acheta assimilis) came to lights in annoying numbers at Yuma August 7 and September 18, at Phoenix September 3. A GRASSHOPPER (Trimerotropis pallidipennis pallidipennis) migrated into Phoenix and Tucson in numbers about September 20.

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